

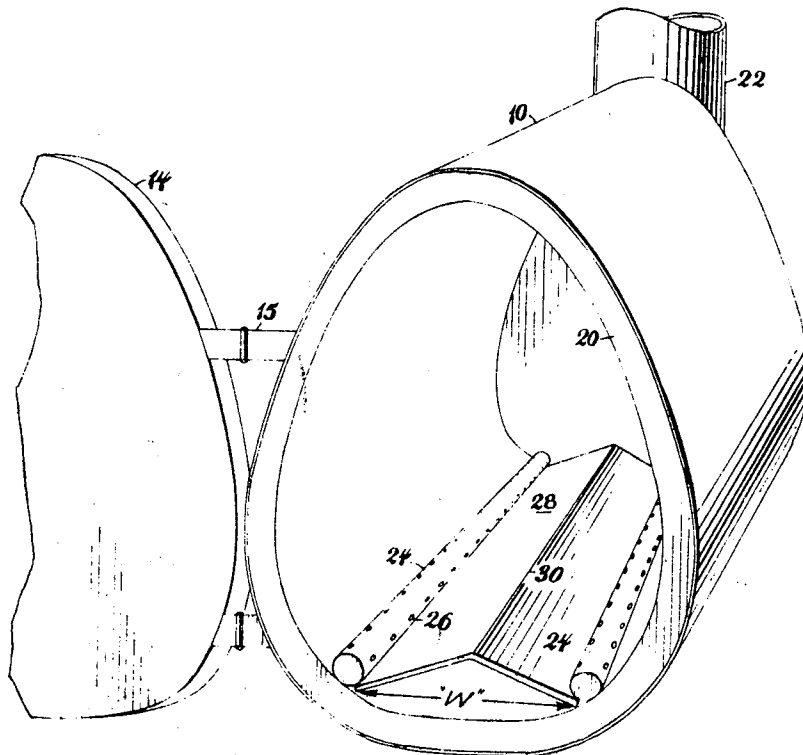
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 [21] Appl. No. **877,713**
 [22] Filed **Nov. 18, 1969**
 [45] Patented **Aug. 10, 1971**
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[56] **References Cited**
UNITED STATES PATENTS
 1,204,530 11/1916 Wright 110/12
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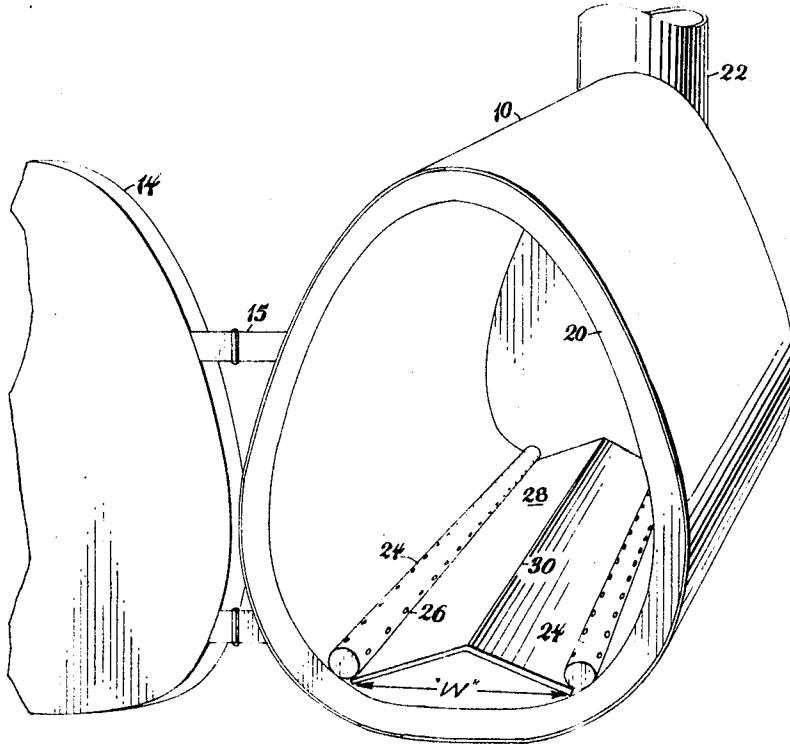
[54] **FILLER PLATE FOR INCINERATOR**
3 Claims, 1 Drawing Fig.
 [52] U.S. Cl..... 110/8 R,
 110/18
 [51] Int. Cl..... F23g 5/00
 [50] Field of Search..... 110/8, 12,
 18

ABSTRACT: A high temperature incinerator having a combustion chamber with a temporary hearth inclined downwardly toward air supply pipes at the sides thereof whereby combustible material placed thereon will slide or roll down the hearth toward said air supply pipes to effect its through combustion and subsequent elimination.



PATENTED AUG 10 1971

3,598,063



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FILLER PLATE FOR INCINERATOR

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to an efficient fume incinerator arrangement whereby a mass of refuse is reduced to fumes or vapors containing organic materials and then exhausted through a stack where it is subjected to further combustion before the noncombustible exhaust gases that remain are vented to the atmosphere.

2. Description of Prior Art

Although incineration of exhaust gases that contain obnoxious combustible products is known to be an obvious way of eliminating the effects thereof, the efficiency of operation of such apparatus has not been extremely critical and many gases exhausted to the atmosphere still contain a substantial portion of their original contaminants or pollutants. Moreover, many of the products that could be eliminated by combustion settle to the bottom of the incinerator chamber in a tightly held mass that becomes insulated from the supply of oxygen necessary for combustion so that it does not properly burn and become eliminated. Thus U.S. Pat. No. 1,064,477 and U.S. Pat. No. 1,886,760 are directed to arrangements that are partly effective in their attempts to reduce the objectionable combustion gases that remain unburned in the exhaust gases being given off during the incomplete combustion of fuel, but the actual results are less than a complete success.

Somewhat later, U.S. Pat. No. 2,965,051 and U.S. Pat. No. 2,936,724 were developed as various improvements in apparatus that hopefully obtains a more complete combustion of the obnoxious effluent gases, while U.S. Pat. No. 3,248,178 was developed as an improvement arrangement that achieves an even more complete combustion of the exhaust gases and elimination of their harmful constituents. However in certain instances and under various conditions that require complete combustion of the waste gases resulting from the high final temperature and a closely controlled period of final incineration, the known devices are still deficient and they are accordingly not widely accepted or widely used largely because of the incomplete combustion in the primary combustion chamber that results from the matter that settles to the bottom of the incineration chamber where it becomes insulated from the surrounding air supply by its own combustion products so that it is deprived of oxygen and remains unburned.

SUMMARY OF THE INVENTION

Air pollution can be caused by various operations or it can come from various sources such as objectionable fumes being exhausted from dry cleaning establishments, paint shops, and all such operations having an organic waste in vapor form. Another such category of air pollution is comprised of vapors such as smoke which are emitted from industrial smokestacks as the result of incomplete combustion. Frequently the smoke clouds being emitted from a smokestack are the result of incomplete or poor combustion of trash in the incinerators, and the poor combustion may be a direct result of the poor conditions for combustion being maintained in the incineration chamber. Thus a blast of smoke may be generated or a mass of unburned trash may remain in the primary combustion of an incinerator when a mass of papers, wet material, garbage, or other type organic matter is supplied to the incinerator without adequate access to sufficient air.

It is accordingly an objective of this invention to define a device for use in an airtight combustion chamber of an incinerator that provides for the complete elimination of combustible material that is placed into the combustion chamber. More particularly, it is an objective of this invention to provide an inclined hearth for an incinerator that inherently agitates the mass of material being burned so that it supplies it with adequate air for combustion.

This invention will have particular importance to apparatus which is being utilized for the complete elimination of con-

fidential papers. By this invention all such papers or other refuse will descend by gravity down an inclined plane to an adequate supply of oxygen whereby it will be subjected to complete combustion and elimination. A brief description of the drawing, the nature of my invention, and the unique advantages thereof will become clear to those skilled in the art from the following detailed description of the invention and the accompanying drawing.

The single FIGURE is a perspective view of an incinerator having a false hearth in accordance with this invention.

In the drawing of the present invention the reference No. 10 designates an airtight combustion vessel disposed on a generally horizontal axis and arranged with an access door 14 pivotally supported on hinges 15 at one end. Near the top of the vessel 10 and remote from the access door is a port to which an outlet stack 22 is connected for the exhaust of products of combustion from the combustion vessel 10. The inner walls of the vessel 10 are insulated by a layer of firebrick 20 or other temperature resistant material capable of withstanding the high temperatures of combustion normally ranging upwards to 2500° F.

The bottom of the combustion vessel is adapted to receive tubes 24 at either side thereof connected to an outside source of air (not shown) and having longitudinally spaced holes 26 that supply sufficient air to the combustion vessel to maintain combustion of organic material therein. Frequently two radially displaced series of axially spaced holes 26 are provided, one series being along the chamber wall to move air upwardly along the periphery thereof, and another series centrally located to exhaust air therefrom in a line more nearly aligned with the radius of the incinerator chamber.

Inasmuch as the space on the heater lying intermediate air supply tubes 24 comprises a relatively "dead" area at the bottom of the incineration chamber, such space frequently becomes lodged with an unburned mass of organic material which is effectively insulated from the heat of the combustion chamber by a layer of gas and charred particles resulting from the partial incineration of the outer portion of the material being incinerated.

This situation is much more severe for some types of material being incinerated than for the usual type of material subject to incineration in the furnace. Thus the conventional incinerator will provide entirely adequate combustion in a majority of situations, however as an adjunct to an incinerator in which it is desired to burn a mass of confidential papers where complete elimination is required or to otherwise incinerate material which is not easily presented in a manner that subjects it to the heat of combustion, the invention provides for a rectangular sheet 28 of thin gauge material longitudinally bent to form a ridge 30 substantially along a line midway between sides thereof. The sheet 28 is formed of a length similar to that of air supply tubes 24 and has a distance "W" between ends thereof substantially the same as the distance between tubes 24 whereby the sheet 28 may be readily inserted into the chamber to form a false hearth spaced from the normal hearth and extending horizontally between oxygen supply tubes.

The sheet 28 may be formed of temperature resistant metal such as a stainless steel, or it may otherwise be formed from sheet-type ceramic material having a high resistance to excessive temperatures. Similarly the angle of bend is not deemed critical although the angle of inclination of the sheet 28 should be sufficient to provide a "slide effect" to a charge placed thereon whereby it will tend to slide or roll and become agitated as it descends to the air emanating from the holes 26 in pipes 24.

While this invention has been described with reference to the embodiment illustrated in the drawing, it is evident that various changes may be made in the "angle of bend" or in the particular material used in the sheet 28 without departing from the spirit of the invention. It is therefore intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting way.

I claim:

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1. Apparatus for burning combustible material comprising a housing defining a combustion chamber with an inlet port for the supply of combustible material thereto and an outlet port for the exhaust of products of combustion therefrom, apertured supply pipes extending along a pair of lower sides of said combustion chamber to supply air for combustion thereto, and a false hearth at the bottom of said chamber intermediate said apertured supply pipes with an upper surface having an inverted V-shape comprising a rectangular plate having a longitudinal bend lying substantially parallel to a spaced pair of side edges thereof to provide a surface inclined downwardly toward said air supply pipes whereby combustible material

placed thereon descends on its inclined surface to the apertured air supply pipes at the sides of the combustion chamber.

2. Apparatus for burning combustible material as defined in claim 1 wherein the side edges of the filler plate lie directly adjacent the apertured air supply pipes at the bottom of the housing.

3. Apparatus for burning combustible material as defined in claim 1 wherein the filler means at the bottom of said chamber comprises a rectangular plate having a bend forming a ridge lying intermediate the apertured air supply pipes of the combustion chamber.

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